



Making
connections
at the **speed
of light**

STL is a leader in optical fibre innovation, breaking new ground in **photonics** and **glass science**





Did you know?

Optical fibre is a highly pure and transparent strand of glass, **finer than human hair**, and it provides limitless bandwidth!

Limitless Bandwidth

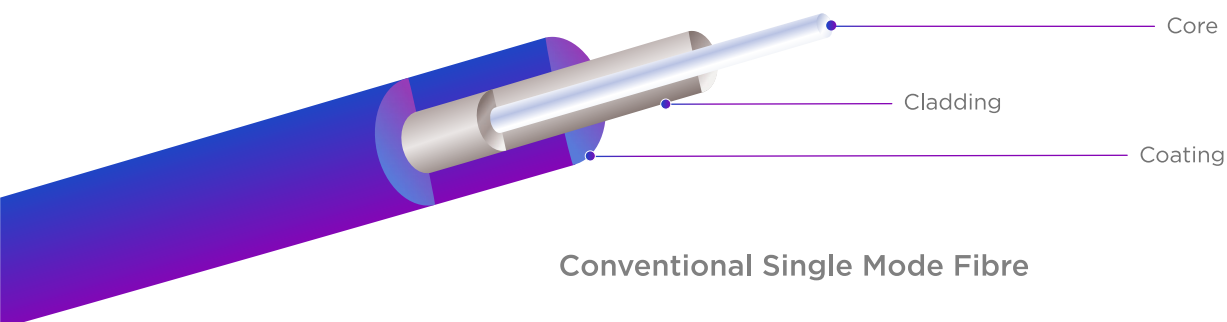
We have entered the Zettabyte era, when end users and enterprises generate and consume more data than an entire city would do till about a decade ago! There are already more devices connected to the internet today than the entire human population, and by 2020, 20 billion 'things' are expected to be connected to the internet.

More data, more devices, more users – with expectations on high bandwidth and low latency, users expect hyper connectivity. Optical fibre is the best-known medium today for transmitting large amounts of data over long distances with minimal signal loss.

Optical fibre can carry **tens of terabytes of data per second at the speed of light!**

Light travels through the core or the centre of fibre, while optical material called cladding surrounds the core and 'traps' the light in the core following the principle of total internal reflection. The core and cladding are made of ultra-pure glass, derived from glass preform. Fibre is coated with a protective plastic buffer coating to protect it from moisture and other damage.

STL-grade preform is so pure that if the ocean were made from it, we would be able to see the bottom of the ocean bed clearly!



Conventional Single Mode Fibre

A worker in a cleanroom environment, wearing a blue protective suit, cap, and safety glasses, is handling large spools of optical fiber. The spools are arranged on a metal rack, and the worker is wearing white gloves. The background shows more spools and equipment, indicating a manufacturing or processing facility.

Why Optical Fibre?

- Almost **unlimited data** capacity, very little attenuation
- **Ultra-fast speed:** Data can travel almost at the **speed of light!** Data multiplies as several wavelengths multiplex in the same fibre
- Ideal for **deployment** most scenarios:
 - Over long distances: Tens of terabytes of data can travel over 80 - 100 km on a single fibre
 - In cities: No interference from wireline and wireless signals
 - In congested areas: Easy to bend around tight corners, with minimal attenuation
 - In extreme temperature and weather variables
- **Secure:** Signals travel at the centre of the fibre (core) and do not get radiated out; and attempts at tapping can easily be monitored

Photonics & Glass Science Expertise



STL are photonics and glass science experts, with deep understanding of data transmission and materials engineering.

Our Centre of Excellence (CoE), dedicated to core research and development (R&D) on fibre technology, has more 216 patents to its credit. Our applications engineering and intellectual property capability enable us to lead in competitive positioning and scale our R&D efforts.

The CoE has a dedicated photonics laboratory for fundamental optical measurements and metrology, a fully functional systems laboratory capable of 100Gb/s to 256Gb/s transmission with a 2000km linear amplified fibre link and all the required long distance peripheral network management and component support.

Our CoE was inaugurated by the late President of India, and eminent scientist, Dr APJ Abdul Kalam. That a person of Dr Kalam's scientific calibre is associated with us, is a matter of great pride.

We have fibre manufacturing facilities in India and China, and are currently setting up a dedicated pilot plant for testing new fibre designs and processes.

Did you know?

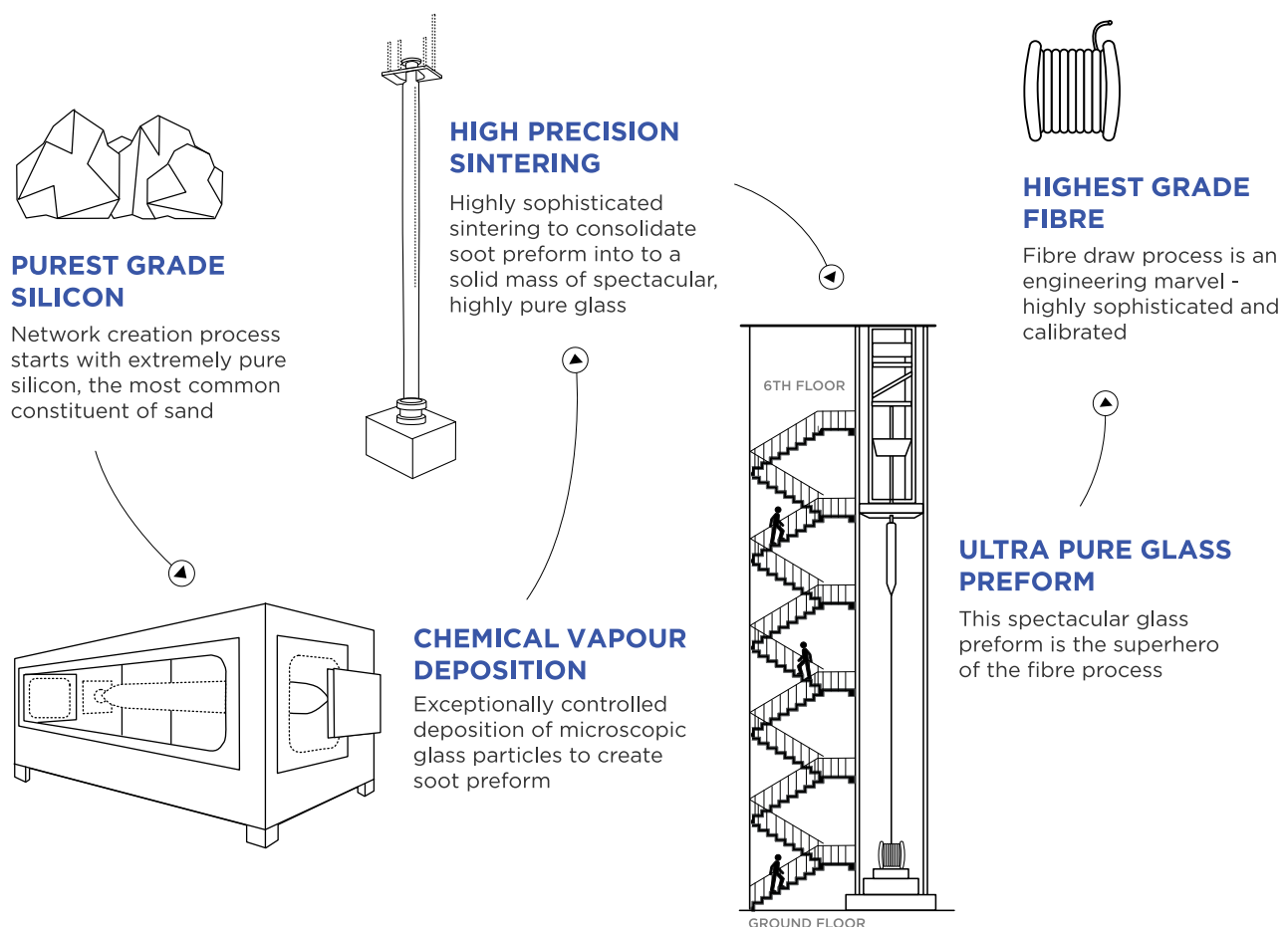
At 50 mn fkm, our fibre can **cover the distance between the Earth and Mars!**

Silicon to Software Capability

STL is the only company in the world to be fully integrated from silicon to software. We manufacture optical fibre from silicon, and are forward integrated for hyper-scale network designs and software-defined networks.

Here's a view of our sophisticated silicon to fibre process. This engineering marvel combines expertise in photonics, glass science, data transmission, materials, chemical engineering and much more.

Silicon to fibre process: An engineering marvel



Innovative Fibre Products



The core of the fibre can be configured in two different ways – single-mode and multi-mode – with the difference being in fibre core diameter, wavelength, light source and bandwidth.

Single mode fibre has significantly lower attenuation and can be used over longer distances than multi mode.

As a leading innovator and manufacturer of single mode, our fibre enables optimum performance in both the 1310 nm and 1550 nm wavelength operation ranges (including the 1565 – 1625 nm L-band).

Our innovative optical fibre are used for the full range of applications, spanning long-haul, metropolitan, access, defence security, FTTx, and premise applications. They are used in all cable constructions such as loose tube, tight buffered, ribbon, and central tube scenarios for underground and aerial deployments.

Our specialised fibre are best suited for long haul, metropolitan, access, FTTx applications, CATV, utility and intelligent traffic networks.

FEATURES

- Low attenuation and dispersion; high level of efficiencies in O-band (1260 – 1360 nm), C- and L- band (1530-1625 nm)
- Full compatibility with other fibre (for parameters such as transmission, connections and installation tools)
- Proprietary ACVD manufacturing process
- State of the art testing and R&D capability

ADVANTAGES

- Suitable for all types of telecom networks
- Standardised products for worldwide sourcing and applications
- Easier, faster and more secure connections
- High grade purity, geometry and uniformity
- Quality output at every manufacturing stage

STELLAR™

OF product name	Certification	USP
Stellar	ITU-T G.657.A2 ITU-T G.657.A1 ITU-T G.652.D IEC 60793-2-50 (B6_a2 fibre)	STL Stellar Fibre is a step towards Next Gen ultra-high definition future. The leading-edge fibre guarantees best-in-class attenuation and macro bend insensitivity, and delivers a host of tangible benefits that can lead to network longevity by a minimum of 10+ years while ensuring “One choice for all network sections”

BOW LITE® Series

BOW LITE	ITU-T G.657.A1 IEC 60793-2-50 (B6_a1 fibre)	Single Mode Optical Fibre with low bend sensitivity across the O, E, S, C & L-bands (1260-1625 nm) in addition to zero water peak
BOW LITE PLUS	ITU-T G.657.A1 IEC 60793-2-50 (B6_a1 fibre)	Enhanced BOW-LITE fibre with improved optical loss, bend insensitivity and dispersion
BOW LITE E	ITU-T G.657.A2 IEC 60793-2-50 (B6_a2 fibre)	Single Mode fibre with further enhanced low bend sensitivity in addition to zero water peak is designed for use over the entire 1260 nm to 1625 nm wavelength range
BOW LITE SUPER	ITU-T G.657.B3 IEC 60793-2-50 (B6_b3 fibre)	Single Mode fibre with extremely low bend sensitivity in addition to zero water peak is designed for use over the entire 1260 nm to 1625 nm wavelength range
MICRO BOW LITE	ITU-T G.657.A1 IEC 60793-2-50 (B6_a1 fibre)	BOW LITE with reduced outer coating diameter (200 µm) and improved bend insensitivity. Ideal for high fibre counts and lower diameter micro cable
MICRO BOW LITE (E)	ITU-T G.657.A2 IEC 60793-2-50 (B6_a2 fibre)	BOW LITE (E) with reduced outer coating diameter (200 µm). Ideal for high fibre counts and lower diameter micro cable

OH LITE® Series

OH LITE and OH LITE (E)	ITU-T G.652.D IEC 60793-2-50 (B1.3 fibre)	Zero water peak single mode optical fibre is designed for use over the entire 1260 nm to 1625 nm wavelength range
OH LITE NOVA	ITU-T G.652.D ITU-T G.657.A1 IEC 60793-2-50 (B1.3 fibre)	Low bend sensitivity across the O,E,S,C&L bands (1260-1625 nm) in addition to zero water peak in wave length range 1383±3 nm

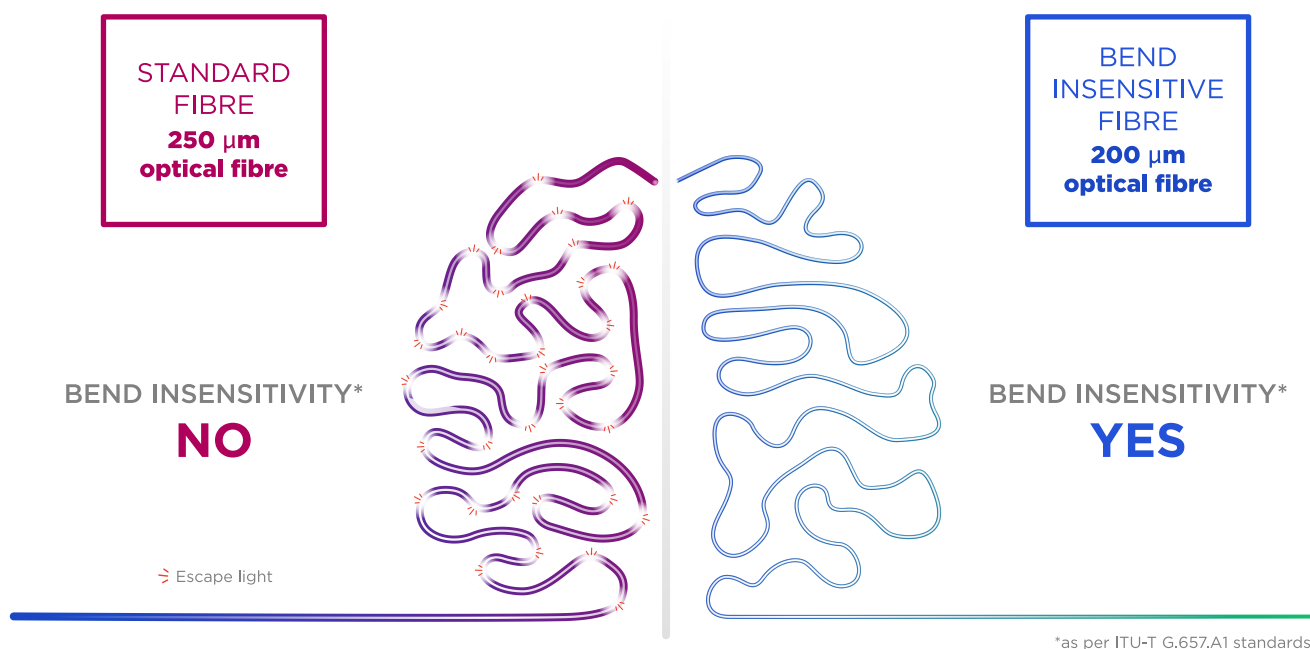
DOF LITE® Series

DOF LITE (LEA)	ITU-T G.655.C/D IEC 60793-2-50 (B4_c/d fibre)	Non-Zero Dispersion Shifted Fibre (NZ-DSF) with large effective area. Large effective area is ideal for high data-rate, multi-wavelength long haul transmission
DOF LITE METRO	ITU-T G.656 IEC 60793-2-50 (B5 fibre)	Non-Zero Dispersion Shifted Fibre (NZ-DSF) with both DWDM and CWDM capability across S-C-L transmission bands (1460-1625 nm)

STL's Bend insensitive 200µm fibre

MICRO BOW LITE

STL's ITU-T G.657.A1 single mode optical fibre is an extremely slim optical fibre with low bend sensitivity and low water peak attenuation. A significant improvement in fibre density in optical fibre cables can be achieved by using slimmer bend insensitive 200 µm optical fibre. In comparison to a standard 250 µm fibre, next generation fibre provides nearly 20% slimmer 432F cable. This cable has special characteristics of low bend sensitivity across the O, E, S, C & L-bands (1260-1625 nm) in addition to low water peak, characterised by the attenuation at 1380-1390 nm being less than the attenuation at 1310nm.



Micro cabling with 200 µm bend-insensitive fibre: Enhanced performance and impact

- **Reduced attenuation:** For applications such as FTTH, STL's micro cabling solutions enable better bend radius and minimise macro bend signal losses 10-20 times.
- **Efficient blowing:** The tube and cable diameters of these solutions is smaller than that of the standard solutions, resulting in greater blowing distance and more efficient blowing performance.
- **Increased physical robustness:** The cable solution can withstand extreme temperatures in the range of -40 degree Celsius and +70 degree Celsius, while the tensile strength is augmented to 1000N.
- **Easier maintenance:** The ergonomic design, with an operational bend radius of 20D/15D, enables greater ease of handling in manholes and hand holes.



Enabling digital transformation through technology and innovation

STL started with being a leading global provider of optical fibre, the fastest known medium for high-speed data networks. Today, we design, build and manage smarter networks.

We have over 200 patents to our credit and are developing solutions for 5G, web-scale and software-defined networks, network function virtualisation, next-generation O/BSS and more. Our manufacturing facilities, software development centres and innovation labs are spread across India, China, Italy and Brazil.

Technology innovation is at the core of everything we do. We offer network solutions to telcos, data centres, tower companies, defence, OTTs and ISPs. We design and build intrusion-proof networks to the Indian Defence. We build citizen networks in cities and villages. In India, nearly 45% of all data travels on our solutions, while globally, we are present in over 100 countries.

We share lineage with the Vedanta Group and are listed on BSE and NSE. In the last three years, our market cap, order book and the new services business have grown 10X. We are growing exponentially.

STL

www.stl.tech